

# Sympodial epiphytic orchid *Oberonia maxima* C.S.P. Parish ex Hook.f. in Kodaikanal Wildlife Sanctuary, Tamil Nadu, India

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**ABSTRACT**

*Oberonia maxima* C.S.P. Parish ex Hook.f. is collected from the Kodaikanal Wildlife Sanctuary, Palani Hills, Tamil Nadu, India and reported here as a new distribution locality in the Western Ghats. Reinstated Sikkim Himalaya species *O. orbicularis* is treated here as a synonym of *O. maxima*.

**Keywords:** Kodaikanal, New Locality, Orchid, Palani Hills, Synonym, Western Ghats.

**1. INTRODUCTION**

The genus *Oberonia* Lindl. is consisting more than 300 species (Prasad *et al.*, 2018) and distributed in Tropical Asia, Tropical Africa, Madagascar, the Mascarene Islands, the Philippines, New Guinea, Northeast Australia, and Southwest Pacific Islands (Govaerts *et al.* 2016; Bunpha *et al.*, 2019). The geographic distributions of species are inhibited by a series of environmental factors. Climate, physical barriers such as mountains, deserts, oceans, rivers, and lakes, anthropogenic barriers like roads, farming, and dams effects the distributions of species (Croteau, 2010; Mott, 2010). Geographically distributed species exhibits several inconsistencies in size even they are closely related or ecologically similar (Mott, 2010). Several misidentifications and overlooking the taxa of different regions to check for existing names are creating the scope for further research on the genus *Oberonia* (Geiger, 2016). During the plant explorations between 2015 and 2020 in Kodaikanal Wildlife Sanctuary, Palani Hills, Tamil Nadu, authors have collected the yellowish flowered sympodial epiphytic orchid species of *Oberonia* (Figure 1). The specimen examination and literature survey (Singh *et al.*, 2019) revealed the identity as *O. maxima*. This orchid species was reported previously from Mukurthi National Park, Nilgiri Hills, Nilgiri Biosphere Reserve, Tamil Nadu (Kaliamoorthy and Saravanan, 2019) and here we reported it after the Palghat gap in the Western Ghats. The Palani Hills and the Nilgiri Hills of Western Ghats in the Tamil Nadu state are

interrupted largest geographical Plaghat Gap (between Nilgiris and Anamalais). As this small epiphyte orchid shows greater geographic distribution, this report may useful to study the ecosystem similarities and variations in the species in the varied habitats.



Figure 1: A–C: Habit; D: Inflorescence; E–F: Close up of Inflorescence

Geiger (2016), treated *O. integerrima* and *O. orbicularis* are synonyms of *O. maxima* based on scanning electron microscopic studies. Later, Singh *et al.* (2019) also treated *O. orbicularis* is a synonyms of *O. maxima*. Li *et al.*, (2018) considered narrowly ensiform leaves 0.6–1.8 cm broad, orbicular lips with notch at the apex and thinner disk features to reinstate *O. orbicularis* from *O. maxima*.

But, Bunpha *et al.*, (2019) maintained species status by considering the irregularly dentate non-succulent rachis and lip bifid to bilobulate at apex but in contrast, the same article states that, the lip of *O. maxima* and *O. orbicularis* is suborbicular. The lip of *Oberonia* flowers plays a significant role to delineate the species (Bunpha *et al.*, 2019). These characters are not consistent as we have noticed all the above characters in the same plant and also in same population of *O. maxima*, hence we reduced *O. orbicularis* is a synonym of *O. maxima*. According to Caplat *et al.*, (2016) population viability and speciation are influenced by dispersal barriers.

## 2. TAXONOMIC TREATMENT

***Oberonia maxima*** C.S.P. Parish ex Hook.f., Fl. Brit. India 5: 677. 1890

*Iridorkis maxima* (C.S.P. Parish ex Hook.f.) Kuntze, Revis. Gen. Pl. 2: 669. 1891.

Type:—Myanmar, Mon State, Mawlamyine, *s.d.*, Parish 287 (K000387694! Lectotype designated by Clayton, 2017)

*Oberonia integerrima* Guillaumin Bull. Mus. Natl. Hist. Nat., ser. 2, 26: 692. 1954.

Type:—Viet Nam, Lâm Đồng, Da Lat, 1954, *Sigaldi/C.R.S.T.* 159 (holotype P00404929!).

*Oberonia orbicularis* Hook.f., Fl. Brit. India 5: 677. 1888.

*Iridorkis orbicularis* (Hook.f.) Kuntze, Revis. Gen. Pl. 2: 669. 1891.

Type:—India, Sikkim, “Dikkeeling”, ca. 915 m, 12 October 1819, Clarke 9610 (holotype K000387696!).

Epiphytic herbs, acaulescent, erect or pendulous. Leaves 5–6, articulate at base, ensiform, 10–28 × 1.5–2.5 cm, coriaceous, acuminate. Inflorescence decurved, spicate, flowers densely packed, irregularly arranged, neither in whorls, nor in spirals; peduncle very short, ca. 5 cm long, terete; rachis ca. 12 cm long, thick, fleshy. Floral bracts longer than ovary, 2–2.5 × ca. 1.5 mm, acute, lanceolate towards apex, green. Ovary ca. 1.5 mm long. Flowers ca. 2.5 mm long, yellowish green, closely adpressed to the rachis, subsessile. Sepals ovate, acute, entire, reflexed; dorsal sepal 1–1.5 × 0.75–1 mm; lateral sepals 1.5–2 × 1.5 mm. Petals ovate, obtuse, 1–1.5 × 0.5–1 mm. Lip suborbicular, unlobed, 1.5–2 × 1.5 mm, concave, crenate along the margins, entire or with shallow notch at tip; disc ovate, cushion like. Column 0.5–1 mm long, thick, ovoid or subglobose; anther cap suborbicular, acute; pollinia ovoid. Capsules ca. 5 mm long, ridged, ellipsoid.

**Flowering & Fruiting:** August–November.

### **Habitat:**

Very scarcely distributed in the savannahs and moist evergreen forests of the Kodaikanal Wildlife Sanctuary at an elevation ranges from 1100 to 1600 m. Collected from Colonymedu, Chennai Saragam where a few individuals are growing on *Terminalia chebula* trees along with *Luisia birchea*.

### **Distribution:**

Borneo, China, Eastern Himalayas, India, Myanmar, Thailand, Lao P.D.R., Viet Nam and (Bunpha *et al.*, 2019). **INDIA:** Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim (Singh *et al.*, 2019) and Tamil Nadu (Kaliamoorthy & Saravanan, 2019).

### **Specimen examined:**

India, Tamil Nadu, Palani Hills, Kodaikanal Wildlife Sanctuary, Katuadachan Parai - Sennai Medu Saragam, 10°15.362 N, 77°33.915 E, 1436 m, 09.10.2018, Kabeer & Ravi Kiran 141117 (MH!).

### **Ethical approval**

The ethical guidelines for plants & plant materials are followed in the study for species collection & identification.

### **Funding:**

This research received no external funding.

### **Conflicts of interest:**

The authors declare no conflict of interest.

**Data and materials availability**

All data associated with this study are present in the paper.

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